US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Coincident Frequency Analysis for Planning and Design in Urban Areas

Needs & Problems Addressed:

- Standard analysis of flood frequency on rivers does not generally address the probability of coincident or simultaneous events
- Need more accurate computation of coincident frequency to avoid errors in estimating joint exceedance probability

Objectives:

- Determine applications of coincident frequency analysis within the Corps
- Formulate research effort to develop methods of generating coincident frequencies
- Review methods of coincident frequency analysis, devise appropriate analysis methods
- Update Corps guidance in application of coincident frequency analysis

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Work Unit Funding Profile:

FY03	FY04	FY05	Total
$ 35k	$ 65k	$ 0k	$ 100k

Comments on funding plan:

- Leverages work outside GI R&D

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Business Program/Missions Areas Supported:

- Inland Navigation __ %
- Coastal Navigation __ %
- Coastal Storm Damage Reduction 40 %
- Inland Flood Control/Damage Reduction 50 %
- Environmental Protection & Quality __ %
- Multi-Purpose (Hydropower, Rec & Water Supply) __ %
- Emergency Management __ %
- Regulatory 10 %
- Support for Others __ %

(Must to add to 100%) Total: 100 %

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CW Strategic Goals Check List: (check if applies)

- Provide sustainable water resources development & mgmt _X_
- Restore past environment degradation ___
- Provide project services of high quality _X_
- Reduce losses from natural & manmade hazards _X_
- Supports being a world class technical leader _X_
- Addresses strategic or system needs in a framework or integrated approach by developing:
  - Methods or decision support tools _X_
  - Technology to improve life cycle productivity ___
  - Technology to monitor systems, provide feedback and develop operating guidance _X_

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Which “short term” field needs does this support:

- Improve efficiencies in Corps project planning and design
- Improve project level decision-making
- Reduce life cycle costs by avoiding over-conservative approach

Field Review Group Relative Ranking:

- FRG planned for 21-22 AUG 02

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Listening Sessions Check List: (check if applies)

- Improves data sharing/exchange with the public in these areas:
  - Provides one stop shop for maps & data for basin wide planning ___
  - Provides data to make informed decisions _X_
  - Provides a system for basin wide planning ___
  - Provides information about what is happening at Corps facilities ___ (up to date web sites)
- Tech Transfer plan to include educating the public _X_
- Coordinate research, models, analysis with regulatory agencies to insure results will be accepted _X_
- Develop R&D products:
  - For watershed management plans, not just at the project level _X_
  - To include aesthetics as components of all projects ___
- Create better models for ground & surface water ___

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Products:

- Develop new or modify existing software to implement method
- Include method in PROSPECT training course
- Update Hydrologic Frequency EM

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Benefits

- Direct:
  - Updated guidance on performance of coincident frequency analysis, supplement to present Hydrologic Frequency Analysis Engineer Manual
- Indirect:
  - Reduce errors in computation of coincident frequency
  - Enhanced level of flood protection
  - More efficient allocation of public investment

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Technology Transfer Plan:

- Engineer Manual to describe requirements and performance of coincident frequency analysis
- Methodology included in PROSPECT training courses
- Educate public through TOWNS website
- Coordinate results with regulatory agencies

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Why should the Corps fund this R&D, instead of private industry and/or others:

- This type coincident frequency analyses is a Corps requirement; there is no incentive for private industry to address this need

What is Impact if not started:

- Potential very large increase of capital costs due to current conservative design
- Flood damage reduction measures may not be implemented where initial cost is too high for cost-share partner